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Jasminanthes xuanlienensis (Apocynaceae, Asclepiadoideae), a new species from Vietnam

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Abstract

Jasminanthes xuanlienensis (Apocynaceae, Asclepiadoideae), a new species from Vietnam is described, illustrated and compared with its five congeners. *Jasminanthes xuanlienensis* differs distinctly from congeners by the longer peduncles (14–18 cm vs. 4 cm at most in *J. pilosa* and *J. saxatilis*, salmon-pink color of the inner corolla lobes (white or greenish in the other species), and corolla tube length (12.0–14.5 mm vs. shorter or longer in congeners).

Keywords

Marsdenieae, China, Xuan Lien National Park

Introduction

Jasminanthes Blume (Apocynaceae, Asclepiadoideae, Marsdenieae) is a small Old World genus of six species (Endress et al. 2014). Its type species, *Jasminanthes suaveolens* Blume, is from Java. However, the centre of diversity of *Jasminanthes* is mainland Asia, particularly China, where the remaining congeners are found (Gilbert et al. 1995, Li et al. 1995). *Jasminanthes* was considered to be a large-flowered *Marsdenia* R.Br. by Forster (1995). However, the very broad circumscription of *Marsdenia* adopted by Forster is not based on phylogenetic evidence and has not been generally accepted

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in later works. For instance *Gymnema*, also considered congeneric with *Marsdenia* by Forster (1995), was retained in floristic works such as Jagtap and Singh (1999) and Watson (1999). The phylogeny of Surveswaran et al. (2014) does not address whether *Gymnema* should be merged with *Marsdenia*. The purpose of the present paper is limited to validate a new taxon and we believe that its correct placement is in *Jasminanthes*. *Jasminanthes* is separated from *Marsdenia* based on its large flowers (>15 mm long) with salverform corolla and by its inconspicuous to absent staminal corona. In contrast, *Marsdenia* usually has much smaller flowers (<10 mm long) with urceolate or rotate corolla and conspicuous staminal corona. If molecular evidence later proves that *Jasminanthes* is indeed to be considered within a broadly circumscribed *Marsdenia,* a new combination will be required.

In Vietnam, no species of *Jasminanthes* have been recorded to date (Ho 1993, Tran 2005). However, recent fieldwork in Xuan Lien National Park, Vietnam, yielded a collection of *Jasminanthes* that was identified as a new species based upon comparison with the known species in the literature and specimens at BK, BKF, BM, HN, HNU, HNPM, IBK, IBSC, K, KUN, KYO, P, SING, TI, TO, TUT, and VNM. Here we describe the new species and provide a detailed table of character differences among the species along with a key to the species of *Jasminanthes*.

Species treatment

***Jasminanthes xuanlienensis* T.B.Tran & Rodda, sp. nov.**
urn:lsid:ipni.org:names:60472843-2
Fig. 1

Type. Vietnam. Thanh Hoa province: Xuan Lien National Park, 720 m, N19°59'14.6", E104°59'49.1", 22 April 2013, *Do Van Hai et al. XL 904* (HN, holotype; HN, isotype).

Description. *Liana* large, up to 10 m long. *Stems* glabrous, 1.7–2 mm in diameter; *internodes* 21–23 cm long. *Leaves* opposite; *petiole* 1.6–2.6 cm long, 1.5–2 mm in diameter, pubescent with spreading trichomes, *lamina* variable in shape, elliptic (ovate), 11–15 × 4.1–6.8 cm, with many black spots when dry; adaxial surface glabrous except sparsely pubescent base with spreading trichomes, basal colleters 1–3 each lamina base, ovoid; abaxial surface pubescent, with spreading trichomes; base round to acuminate; apex acuminate with a caudate tip 0.8–1.5 cm long; lateral veins 9–13 pairs. *Inflorescences* extra-axillary, simple or dichotomous, umbelliform, up to 30-flowered; *peduncle* 14–18 cm long, 1.3–1.7 mm in diameter, pubescent, trichomes spreading to retrorse. *Pedicel* 8.5–11.0 mm long, 0.2–0.5 mm in diameter, pubescent with spreading trichomes. *Flower bud* just before anthesis fusiform, 10.7–13.0 mm long, 1.9–2.9 mm in diameter, apex acuminate, base bulbous. *Calyx* sepals 5, free; *lobes* triangular-linear, apex acuminate, 2.5–2.6 × 0.6–1.0 mm, adaxial surface glabrous, abaxial surface pubescent with spreading trichomes; *colleters* occurring singly between the sepals, ovoid-conical, 0.2–0.3 × 0.1–0.2 mm. *Corolla* salverform, tube 12.0–14.5 mm long, adaxi-

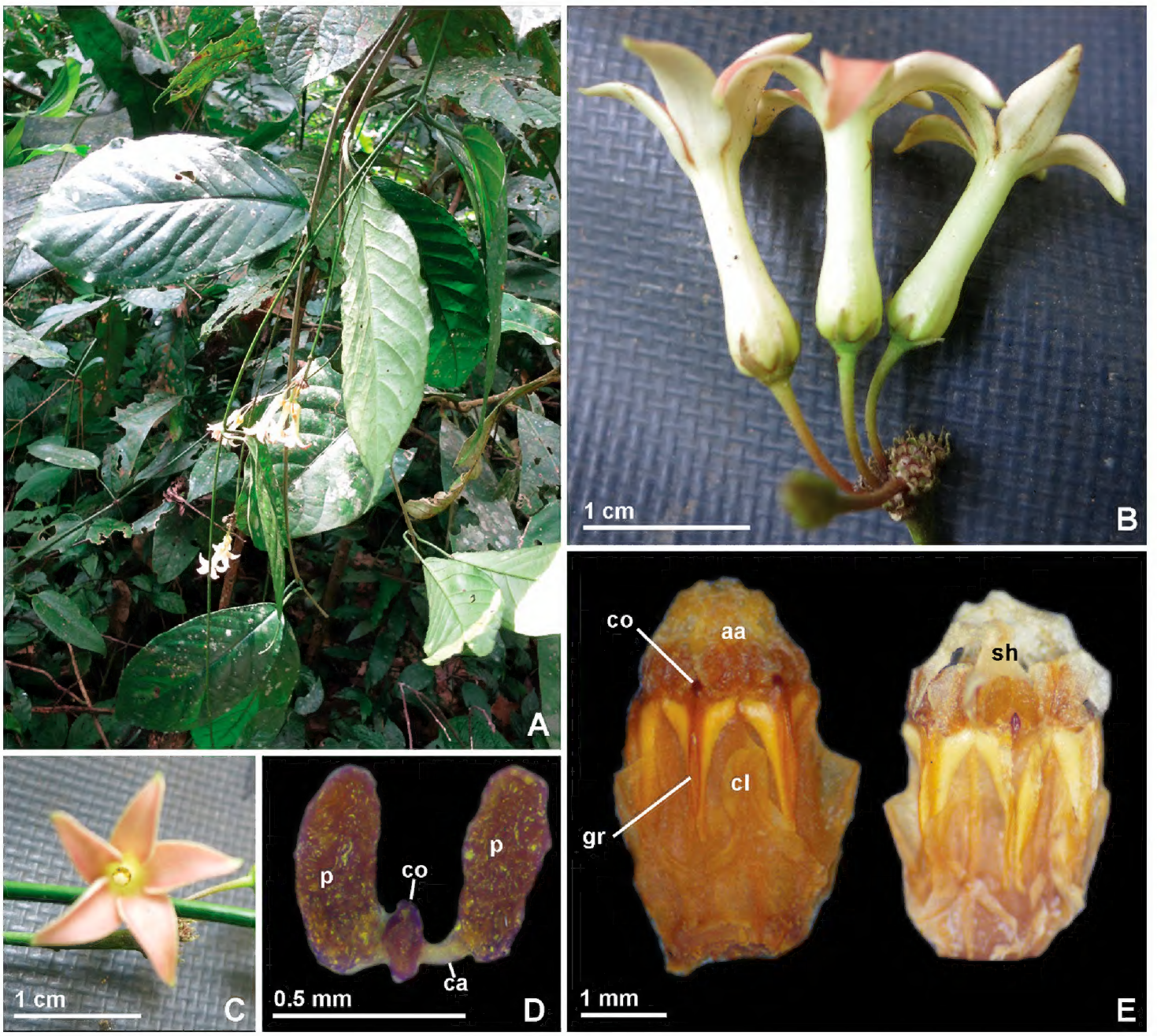

Figure 1. *Jasminanthes xuanlienensis* T.B.Tran & Rodda. **A** Flowering branch in the habitat of the type locality (22 April 2013) **B** Inflorescence **C** Flower, top view **D** Pollinarium **E** Gynostegium and staminal corona. aa: anther appendage; ca: caudicle; cl: corona lobe; co: corpusculum; gr: guide rail; p: pollinium; sh: style head . (Photographs by T.B. Tran, photo edit by M. Rodda).

ally with 5 pairs of longitudinal lines of retrorse trichomes, abaxially glabrous, throat pubescent, eglandular trichomes 0.36–0.70(–1.34) mm long, lobes elliptic-ovate to triangular, 7.0–8.0 × 3.0–3.6 mm, adaxial surface salmon-pink, abaxial surface greenish-white. *Corona* staminal; corona lobes arrow-shaped, much reduced and attached to gynostegium lengthwise, c. 1.8 mm high, c. 0.8 mm wide, glabrous. *Guide rails* 1.7–2.0 mm long. *Gynostegium* 3.5–4.0 mm tall, 1.8–2.0 mm wide. *Pollinia* erect, oblong, 0.49–0.58 mm × 0.2–0.23 mm; *caudicle* 0.12–0.13 mm × 0.05–0.06 mm; *corpusculum* rhomboid, 0.2–0.23 × 0.10–0.11 mm. *Anther appendages* erect, covering the style head, 1.0–1.2 × 0.7–0.9 mm. *Style head* conical with a round tip, 0.8–1.0 mm high. *Ovary* bi-carpellate, carpels ovoid, c. 1.60 mm long, 1.10 mm wide at the base. *Fruits* and *seeds* not observed.

Etymology. The species is named after the type locality, Xuan Lien National Park, Thanh Hoa province, in northern Vietnam.

Table 1. Morphological comparision of *Jasminanthes* species.

Characters	*J. xuanlienensis*	*J. chunii*	*J. mucronata*	*J. pilosa*	*J. saxatilis*	*J. suaveolens*
Lamina shape	elliptic (ovate)	ovate	ovate-oblong	oblong-ovate	elliptic-lanceolate	elliptic-lanceolate
Lamina base	acuminate	cordate-subcordate	cordate-subcordate	cordate	acute	acute to round
Lamina apex	caudate	acute-cuspidate	acuminate-short caudate	shortly acuminate	acuminate-caudate	acuminate-cuspidate
Lateral veins (pairs)	9–13	4–7	5–7	7–10	5–6	5–8
Length of petiole (cm)	1.6–2.6	1–1.5(–2)	1.5–3	1–4.5	1.3–1.8	0.7–1.2
Number of flowers	up to 30	up to 12	2–4(–9)	5–10	c. 10	c. 10
Length of peduncle (cm)	14–18	(0.5–)1–1.5 cm	1–2	2–4 cm	3–4	0.5–1
Length of pedicel (cm)	0.85–1.1	1–1.3	1–3	0.7–1	0.8–1	0.7–1
Shape of sepal	triangular	oblong	elliptic-oblong	oblong-lanceolate	triangular	triangular
Size of sepal (mm)	2.5–2.6 × 0.6–1	5–6 × c. 2	7–8 × 3–4	18–30 × 4–8 mm	c. 3 × 1	5.5–8 × 2–3.5
Corolla lobe colour	adaxially salmon-pink, abaxially greenish-white	white	white	white	greenish	white
Length of corolla tube (mm)	12.0–14.5	7–9	c. 15	40–50	6–8	9–11
Size of corolla lobe (mm)	7.0–8.0 × 3.0–3.6	6–8 × 4–5	15–17 × 6–8	25–30 × 6–8	c. 10 × 3	7.0–9.0 × 1.0–1.5

Distribution and ecology. *Jasminanthes xuanlienensis* was found growing in primary evergreen forests on limestone soil of Xuan Lien National Park. It was collected in flower in April. Plants observed growing in the vicinity include *Piper acreanum* C.DC., *Beccarinda tonkinensis* (Pellegr.) B.L.Burtt, *Sarcosperma kachinense* (King & Prain) Exell, *Hoya vercillata* (Vahl) G.Don, and *Alangium salviifolium* (L.f.) Wangerin.

Conservation status. *Jasminanthes xuanlienensis* is known only from the type locality, an area still poorly known botanically; its preliminary conservation status is therefore Data Deficient (DD; IUCN 2014).

Notes. The six species of *Jasminanthes* are clearly distinguishable from one another based on morphological characters (Table 1). The new species can be easily separated from all *Jasminanthes* species as it has very long peduncles (14–18 cm long), while the longest peduncles observed in other species are those of *J. pilosa* (Kerr) W.D.Stevens & P.T.Li and *J. saxatilis* (Tsiang & P.T.Li) W.D.Stevens & P.T.Li), which reach 4 cm long. *Jasminanthes xuanlienensis* has unique pink corolla lobes whereas the other species have white corollas, or greenish corollas in *J. saxatilis*.

Key to the species of *Jasminanthes*

1	Peduncle >10 cm long; corolla salmon, pink adaxially	***J. xuanlienensis***
–	Peduncle <5 cm long; corolla white or greenish adaxially	**2**
2	Sepals >15 mm long; corolla tube >35 mm long	***J. pilosa***
–	Sepals <10 mm long; corolla tube >10 mm long	**3**
3	Corolla tube >13 mm long, lobes >14 mm long	***J. mucronata***
–	Corolla tube <11 mm long, corolla lobes <10 mm long	**4**
4	Lamina ovate, base cordate or subcordate	***J. chunii***
–	Lamina elliptic-lanceolate, base acute to round	**5**
5	Sepals <3.5 mm long; peduncle >3 cm long	***J. saxatilis***
–	Sepals >5 mm long; peduncle <1.5 cm long	***J. suaveolens***

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References

Endress ME, Liede-Schumann S, Meve U (2014) An updated classification for Apocynaceae. *Phytotaxa* 159: 175–194. doi: 10.11646/phytotaxa.159.3.2

Forster PI (1995) New names and combinations in *Marsdenia* (Asclepiadaceae: Marsdenieae) from Asia and Malesia (excluding Papuasia). Australian Systematic Botany 8: 691–701. doi: 10.1071/SB9950691

Gilbert MG, Stevens WD, Li PT (1995) Notes on the Asclepiadaceae of China. Novon 5: 1–16. doi: 10.2307/3391820

Ho PH (1993) Cay co Viet Nam: An illustrated flora of Vietnam. Mekong Printing, Montreal.

Jagtap AP, Singh NP (1999) Fascicle 24 (Apocynaceae, Asclepiadaceae). Fascicles of Flora of India, 24. Botanical Survey of India, Calcutta.

IUCN Standards and Petitions Subcommittee (2014) Guidelines for using the IUCN Red List categories and criteria. Version 11. Prepared by the Standards and Petitions Subcommittee. Downloadable from http://www.iucnredlist.org/documents/RedListGuidelines.pdf

Li PT, Gilbert, MG, Stevens WD (1995) Asclepiadaceae. In: Wu ZY, Raven PH (Eds) Flora of China, vol. 16. Sci. Press, Beijing & Missouri Bot. Garden Press, St. Louis, 189–270.

Surveswaran S, Sun M, Grimm GW, Liede-Schumann S (2014) On the systematic position of some Asian enigmatic genera of Asclepiadoideae (Apocynaceae). Botanical Journal of the Linnean Society 174: 601–619. doi: 10.1111/boj.12156

Tran TB (2005) Asclepiadaceae. In: Ban NT (Ed.) Checklist of plant species of Vietnam 3. Agricultural Publishing House, Hanoi, Vietnam, 58–75.

Watson MF (1999) Asclepiadaceae. In: Long DG (Ed.) Flora of Bhutan 2: 687–733.